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Saturday, October 11, 2008

Emergency economics

For those of you who didn't catch me on econ-law a few months ago [2005] during the hurricanes, here is an expanded version of what I posted there:

Here are some alternative ways of rationing in an emergency. At least some of these have been written about by Yoram Barzel. We have witnessed all of them during hurricane Katrina [and also this summer (2008) during Ivan]:

(1) market prices ("price gouging")
(2) waiting in line
(3) centrally planned rationing
(4) don't ration: just let the resource run out

It's not clear that, even with perfect knowledge, with or without an emrgency, centrally planned rationing could operate without using one of the other methods of rationing. In any case, our very poor knowledge about each others' needs is sufficient to ensure that, short of a perfect price system, we can't get what we want without waiting in line, and sometimes we just can't get what we want (or even, the Rolling Stones notwithstanding, what we need). The worse the price system -- in other words, the higher the transaction costs -- the more we wait in line or do without, as East Germany once demonstrated (cf. West Germany) and as North Korea continues to demonstrate. Luckily for those of us in largely market price based economies, we need only wait in line when trying to do business with the government, call a toll-free service line, go to a hot movie on opening night, or during an emergency -- i.e. in the remaining situations where prices don't operate very well or at all, due to transaction costs imposed by law or otherwise.

Mises and Hayek long ago demonstrated the weakness of centrally planned economies such as the old Soviet Union (or today's North Korea) -- the lack of knowledge the government has about peoples' needs and desires. Similarly, lack of the requisite detailed rknowledge of the needs of others, especially at specific times of crisis when they need our help most, is a huge problem even if we were perfectly charitable. Not even the local governments exhibited much knowledge of the needs of their neighbors, especially in New Orleans. Much less did the state or Feds (FEMA being only the most glaring example) exhibit even a tiny fraction of the knowledge that would be required for an optimal outcome. This is not the fault of the people in the government agencies to not act as knowlegeably as they are capable of acting, but rather the fault is in their implied promises and our expectations. For example, TV

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Nick Szabo

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commentators, watching pictures of some Coast Guard helicopters, seem to have come to expect that government agencies will swoop down from the sky and rescue everybody and take on other attributes of God. Such as, for example, being able to knowledgeably evacuate people and distribute other scarce goods and services in a disaster.

Per Mises and Hayek, even if the Soviet Union had been run by an perfectly beneficient dictator, people would have, short of a matching omniscience of said dictator (and of enough of his underlings to receive and act on the knowledge) still have waited in bread lines. When price controls hit gasoline in the United States in the 1970s, people similarly waited in gas lines.

In emergencies rationing becomes extreme: people wait in long lines, pay "extortionate" prices, or, even worse, do without. We are thrown into economically unfamiliar territory and transaction costs balloon. Goods will always be rationed in one or more of the above four ways, and in an emergency the rationing can be quite severe. Our charitable spirit can temporarily overcome self-interest, but it can't overcome the knowledge problem or the scarcity of goods.

Given that waiting in line, or doing without, are very painful (even sometimes deadly) alternatives, and that allowing the charge of very high prices can largely prevent use of these extreme and wasteful forms of rationing, why do we have price gouging laws?

Can price gouging laws be explained as follows? In a zero transaction cost world, consumers would successfully negotiate with retailers for an insurance policy that caps prices in case of emergency. This may be, for example, because retailers are better able to bear the risk of emergency supply shortages than consumers are, or because consumers don't want to bear the risk of having to have an unusually large amount of money at hand during an emergency. (Katrina may be a good example of this -- it reportedly struck just before many paychecks were due, leaving many people who live from paycheck to paycheck without funds). However, the transaction costs for negotiating with consumers for such contracts are too high. Therefore, the default retail sales contract should include such insurance. Price gouging laws are a convenient way to do this. More generally, if it weren't such a bother almost all of us would like to purchase insurance against volatile prices in order to make our budgets more predictable.

Whether and when wholesale contracts include such price caps provisions would provide interesting evidence in favor of or against this hypothesis, and under what conditions it would have been rational to for consumers and retailers to have made such a contract.

As we have seen, there is a strong economic argument against price gouging laws. Consistent application of market pricing during an emergency would minimize the other inefficient, and occasionally deadly, rationing methods above, especially (4)actually running out of emergency supplies. Consumers could be confident that supplies will not run out, so stocking up on excess supplies based on fear of imminently running out of the supply (such as we've seen consumers do in some areas recently with gasoline) would be minimized. Given modern technology, perhaps we should work on improving the availability of credit and liquidity in emergencies via always-up wireless devices and immediately payable liquidity insurance policies instead of price gouging laws.

Furthermore, the promise of very high prices might motivate retailers to fly in special deliveries of emergency supplies at otherwise prohibitive transportation rates. On can even imagine for-profit organizations doing many of the tasks that the National Guard, Red Cross, and similar organizations are doing now. Of course, the moral indignation would be enormous. People, at least in political discussion, tend to be extremely averse to "windfall profits" and seem to have a strong psychological preference for an implicit insurance policy that puts a price cap during emergencies on retail contracts.

Posted by Nick Szabo at 12:13 PM

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4 comments:

tom n said...

Perhaps I didn't follow precisely and you did allude to combinations of the 4 methods, but I feel you gave rationing a short shrift.

Rationing of sugar and other commodities was in effect in the US during world war II and I would guess that rationing somewhat combined "state planning" "lines" and "price gouging" in ways that ameliorated the negatives of all three.

Given increases in technology like fingerprint recognizion or something, an allotment might be even workable without physical distribution of allotment slips.

The "state plan" aspect could recognize some logical goods in need for distriubtion, but unable to be supplied in unlimmited amounts hence a voucher or alotment might be determined.

While the collection of ones " rightful alotment" might have some line waiting aspects, (and some issues or hurdles allowing one person to collect others allotments due to inabilty to move etc) the lines could be shorter or non existent and not be the matter themselves.

The abilty for people to collect then to resell their entitled alotments (motivated if they were scarce) would bring the market tranfer system into play but without as high a benefit conveyed to hording or being an unique supplier and may though the barter mechanism allow those in need of other priorities to have a means for trading for them with another needed product.

Modified market systemes that mix who pays, who is entitled, yet allow barter or tranfer of a value can impose allow for market diciplines to function in conjuction with the others..

... as you mentioned it is a combination, and I'd reiterate that the combinations can do more or something different than the others sepeately

2:57 PM

tom n said...

thinking a bit more on a few of your comments..

I do like your conclusion that being a retailer might carry with it an obligation to provide certain distribution services on a " non gouging" basis in a time of need and retailers if warned of such an obligation in advance might be best able to properly insure against such costs. The "how" of the regulations and insurance of course would be where the true decisions were made but any "right" to make an unusual profit could be logicallly taken away well before the fact of a disaster without looking like a taking but rather a foseable cost of doing buisness.

I'd like to point out that retailers and buisnesses DO have some imprecise but truly applied experience in alotting and rationing.

Think of the store coupons they put out (some times for almost free items) and the restrictions of how many of an item an indivudual could buy at the discount price.

Retailers, through their buyers clubs and credit cards typcially used already perform a sort of identity check to prohibit abuse.

Many retailers also have programs where buyers earn free items like turkeys etc after so many purchases.

In their limitted forms the promotions and loss leaders are sort of permanent income streams (when paid for by manufactors for promotional purposes) and loss leading marketing vehicles to bring buyers in who will make incedental higher margin purchases.

Certainly there would be some exploitation possibilties which there current systems aren't designed for in an emergency but They are already have some systems for allocation and verification and to keep themselves from being taken to the cleaners by fraud.

In understanding the economics of allotment, line cost (minor effort of clipping or the "cost" of sharing identity) and store discounts might be looked at.

Another existing allotment, line cost, pricing, and planning scheme came to mind: Beer sales at sporting events.

The owners of the facilities are almost purely profit minded but in their sales of alchohol they are faced with extralities due to overconsumption some purchasors.

Some of the extralities the team bears themselves...lost revenue of fans who chose not to purchase tickets in the future because of boorish behaviour of others, legal and insurance costs due to damages courts attribute to the vendor selling too much to an individual. Some extralities are borne by the community which may in turn seek to regulate sales using the communities police power.

At any rate most sports venues have devoloped a mixed system of lines, regulation, and price (and product?) to ameliorate the situation.

Some parts of the country still have beer sales in the seats but most don't, requiring a purchasor to walk (line concept with or without a line).

Quantity of alchohol sale is often limmited to 2 servings per id. (this is the fiat concept? or is is more line?)

Alchohol sales are ended usually 3/4's through the game, allowing some to come to senses or preventing others from falling off a cliff or who knows. (central planning)

Sales prices for all items at sporting events might be considered "gouging" but I bet that should one gain the confidence of those making vending price decisions there are considerations in the sizing and pricing of the alchohol sales that attempt to do more than profit makxization but to consider the potential extralities in their price and sizing decisions.

I have noticed that the "line" factor is manipulated by sporting organizers who are willing to have shorter lines near the luxury seats (and even hard alchol in private lounges) likely because the externalities costs go down with similarly intoxiated "professional" types than are likely to stem from the mix in the more moderate seats.

For both type of seats they realize that a fair percentage of their customers wouldn't come nearly as frequently if the alchohol were entirely elmimated...they have a positive extality beyond profit per unit sold in assuring that "hospitality" feature of the booze.

Long and short, for profit companies have some experience in the phychology and practical application of distribution in ways that don't focus on that segements loaded profits per item sold.

((Of course there a godzillions of examples of internal buisness decisions based beyond price value norm where "protecting the brand" means deliberately giving less value to consumers to increase percieved value and thus preserve high margins, without which there might be no profits.....
))

5:31 PM

Nick Szabo said...

Tom, thanks for the great comments. Your sports stadium example is wonderful. Firms do indeed mix these different types within the scope of their business. They have a large advantage over governments by being specialized and having substantial knowledge about their customers within that specialty. I wouldn't expect sports stadium officials to respond well to a new situation, though (such as having to house hurricane victims), since it's outside their specialty.

I don't agree that rationing by government works very well. It appears on the surface to be very rational (give each person X amount of commodity Y), but the needs of people for commodity Y often differ greatly and are not easily discoverable by people not normally in the business of distributing commodity Y -- which include the general population who receives these vouchers in addition to the government. If vouchers could be easily traded electronically, a la EBay, this could substantially mitigate this knowledge problem, so I think that is a very interesting suggestion.

Another problem with such schemes (which are also implicit insurance schemes)is moral hazard, but that is beyond the scope of what I have been exploring in the article.

A recent study tends to support the idea that first-hand knowledge is important to responding to emergencies, although the effect may diminish and be outweighed by other factors beyond a very local scale. Louisiana residents ranked various instutitions for the effectiveness of their response to hurricane Katrina. Churches ranked higher than national charitable organizations, and both ranked higher than governments. This can be explained by the Austrian theory of distributed knowledge I sketched above. Very local institutions in which participation is high, such as churches, have far greater knowledge of their members' needs than do national charities or governments.

An unexpected result of the survey is that the federal government generally scored better than local agencies. This may be explainable as (1) political bias if the poll was weighted towards rural Republicans rather than urban Democrats, (2) unique local politics in Louisiana which may not work similarly in other parts of the U.S. or the world, (3) the level of participation and thus mutual knowledge between both residents and any level of government is low, or (4) that beyond the most local of governments (e.g. a small rural town or an urban ward community group) with long-term and first-hand knowledge of the victims, the level of mutual knowledge is so low anyway that further distance makes little difference.

11:18 AM

J Thomas said...

I think your theoretical ideas here are interesting. But they seem to miss some important realities.

In emergencies, we value saving people's lives even beyond their ability to pay for rescue. We think of it as a government duty. The trouble with allowing prices to equilibrate is that the poorest will be cut out from all scarce resources just when they're most in danger. Rational businesses might ship in needed goods at high transportation costs -- but only to the extent that there are affluent customers for those goods.

In theory rationing systems allow poor people to get enough of things. And to the extent they don't need what they get, or need something else more, they have the chance to trade their cheap rationed goods for what they do need. But there's the temptation for people all along the line to pilfer stuff -- whatever the final recipients can trade, so can thieves. And anyway, rationing works better for stable scarcities than emergencies. When you aren't even organised enough to count the people who're in danger, how can you set up an effective rationing system? And in the long-term stable situation, why would you want to organise a stable scarcity? You'd have to have a policy that the scarcity isn't worth lifting -- you have other priorities, like a war -- and yet you don't want to sacrifice the poor too much.

The problem in a sudden emergency is that the systems have broken down. The government stuff that people depend on has broken down. The usual markets that people depend on have broken down. And the people who're in trouble don't have the resources to command large market forces.

So, just thinking it out, say you had a community where everybody was a millionaire, and they were stranded by a disaster, they couldn't get out but they'd die if they didn't get out. One of them gets out a message that each and every one of them will pay a flat million dollars for transportation out of there. We'd have no trouble organising a rescue. But if they could only offer $5000 each, the response would be a bit more tepid. And if they were broke....

I figure for disasters the first priority is to establish minimal replacement services. Food, clean water, shelter/clothing, communication, transport. It doesn't take tremendous communication with consumers to figure out these priorities. If this isn't what they need, then they aren't disaster victims. Government and charitable organisations have to pay for it because the victims can't. It makes sense for government and charities to set up readiness contracts ahead of time that don't involve too high a price. It makes sense to fill in the gaps with whatever they have to have at whatever price they can get.

Katrina might be a special case because the power went off. The cellphone relays were flooded or ran out of power, and there was no way to recharge batteries in individual cellphones. But it might not be a special case, we'd face that same thing with an EMP attack, and we could lose power in various emergencies. So I'd like to see a contract for an impromptu cellphone system. Build solar-powered relays, and solar-powered cellphones with GSP, and have the whole thing mothballed ready to go where it's needed. Get an area where communication is knocked out, and you can move in with helicopters and set up the relays, and move in with lots and lots of cellphones and just give them away. "Here, take six and give them to whoever doesn't have one." A million cellphones don't cost that much. Get volunteers elsewhere to man the response lines and write up needs on websites. Get volunteers or professionals to review the logs and guess what the needs will be tomorrow and next week. Because as the crisis improves (we hope) the needs will change, and what gets provided next week must be prepared today.

That it's an emergency -- the needs are changing fast -- is what makes it hard for any system to adapt. Try this thought experiment. Here's the Katrina problem, and the government finds a way to magically issue debit cards to everybody in the area, and each debit card is good for $50,000. For Katrina that would have amounted to somewhere around $100 billion. And we had no price gouging laws. How long would it have taken the market to solve the problem? I expect many of the immediate problems would have been managed much faster than the incompetent FEMA etc did in reality. But I don't expect it would be much faster than a competent public/charity rescue operation. (And if it wasn't magic, we might have the problem of people sneaking into the disaster area hoping to get their $50,000....) But which of those citizens is going to pay to get the levees rebuilt and the water pumped out and the power restored?

When you have $50,000 and urgent needs, you'd rather buy gasoline at $20 a gallon than none at all. What about the guy who's just outside the disaster area? He doesn't get anything, but he's going to be paying at least $10/gallon for gas. Why should they sell gas to him at regular price when they can ship it where people will pay top dollar?

Markets are theoretically better than governments at equilibrating. But emergencies are inherently non-equilibrium problems. By the time things equilibrate the emergency is over. Markets work best when there's a functioning legal system etc. When people are paying $10/gallon for bottled water, why not charge them $10/gallon for contaminated water? You can save the expense of shipping it in. Not like you'll see them again....

I think a carefully planned emergency response works much better than relying on ad hoc free markets, provided that the emergency that happens is similar enough to the emergency that was planned for. When it isn't, then people are going to fumble around with lots of waste and inefficiency and slowdowns no matter how it's organised. It's a fight against entropy right after entropy has won a major battle.

1:42 AM

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